AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application.

1. (currently amended) A process ~~Process~~ for making a chalcogenide glass ~~of low optical loss~~ comprising ~~the steps of~~:

[[(a)]] disposing an arsenic monochalcogenide ~~precursor~~ and at least one chalcogenide selected from the group consisting of sulfur, selenium, tellurium and mixtures thereof, at a hot section of an open distillation system;

[[(b)]] ~~dynamically~~ distilling under vacuum in [[an]] the open distillation system the arsenic monochalcogenide ~~precursor~~ and the at least one chalcogenide so that the arsenic monochalcogenide ~~precursor~~ and the at least one chalcogenide are deposited at a cold section of the open distillation system;

sealing the open distillation system; and

[[(c)]] reacting and homogenizing the distilled arsenic monochalcogenide ~~precursor~~ and the at least one chalcogenide while a transformation from crystalline state to glassy state takes place.

2. (currently amended) The process of claim 1 wherein the open distillation system is an elongated glass receptacle with an open end adjacent the cold section.

3. (currently amended) The process of claim 1 wherein [[said]] the distilling ~~step~~ of the arsenic monochalcogenide and the at least one chalcogenide comprises ~~includes heating the precursor and the at least one chalcogenide to vaporize same and~~ depositing arsenic monochalcogenide precursor and at least one chalcogenide ~~same~~ in solid form at the cold section of the open distillation system.

4. (currently amended) The process of claim 3 wherein the ~~step of~~ reacting and homogenizing of the arsenic monochalcogenide and the at least one chalcogenide is conducted at a temperature above 550°C whereby the chalcogenide glass is formed.

5. (currently amended) *The process of claim 1 wherein the* ~~step of~~ *distilling* of the arsenic monochalcogenide and the at least one chalcogenide is carried out at a temperature below ~~about~~ 550°C ~~and wherein dynamic distillation is carried out under vacuum~~.

6. (currently amended) The process of claim 1, further comprising:
~~which includes the step of~~ reacting arsenic and the chalcogenide of the arsenic monochalcogenide ~~components of the chalcogenide precursor~~ to form the arsenic monochalcogenide ~~precursor~~.

7. (currently amended) The process of claim 6 wherein ~~the step of~~ the reacting of the arsenic and the chalcogenide of the arsenic monochalcogenide ~~precursor components~~ is carried out at a temperature of 300°C to 450°C.

8. (currently amended) The process of claim 1, further comprising:
~~including the step of~~ ~~dynamically~~ distilling [[the]] an unpurified arsenic monochalcogenide ~~chalcogenide precursor~~ in an open glass receptacle to form the arsenic monochalcogenide; and ~~then~~
homogenizing the arsenic monochalcogenide ~~chalcogenide precursor and reacting same with a chalcogenide~~.

9. (currently amended) The process of claim 8 wherein ~~including~~ the ~~step of~~ distilling of the unpurified arsenic monochalcogenide ~~chalcogenide precursor in an open glass receptacle~~ is carried out at a ~~high~~ distillation rate of at least about 65.6×10^{-3} g/cm^2-sec ~~and reacting the precursor and the chalcogenide to from a chalcogenide glass~~.

10. (currently amended) The process of claim 1 ~~claim 9~~ wherein the hot section and the cold section comprise ~~step of reacting the chalcogenide precursor and the chalcogenide takes place in a closed~~ glass ~~receptacle and wherein the chalcogenide glass is of a uniform color~~.

11. (currently amended) A process for making arsenic sulfide glass ~~of low optical loss~~ comprising ~~the steps of~~:

[[(a)]] placing arsenic monosulfide ~~precursor~~ in a glass receptacle;

[[(b)]] ~~dynamically~~ distilling under vacuum the arsenic monosulfide ~~precursor~~ to make purified arsenic monosulfide ~~precursor~~;

[[(c)]] homogenizing the purified arsenic monosulfide ~~precursor~~;

[[(d)]] adding sulfur to the purified arsenic monosulfide ~~precursor~~;

[[(e)]] distilling~~, reacting and homogenizing~~ under vacuum in an open distillation system the purified arsenic monosulfide ~~precursor~~ with the sulfur to form distilled arsenic monosulfide and sulfur;

sealing the open distillation system; and

reacting and homogenizing the distilled arsenic monosulfide and sulfur to form the arsenic sulfide glass ~~of low optical loss~~.

12. (currently amended) The process of claim 11;

wherein the ~~1 including the steps of~~ ~~dynamically~~ distilling of the arsenic monosulfide ~~precursor~~ and the sulfur is carried out at a distillation rate of 500-1500 x 10^{-3} g/cm^2-sec; and

wherein the reacting and homogenizing of the ~~resulting~~ distilled arsenic monosulfide and sulfur results in the arsenic sulfide glass having uniform color.

13. (new) The process of claim 12 wherein the distilling of the arsenic monosulfide and the sulfur is carried out at a distillation rate of about above 900 x 10^{-3} g/cm^2-sec.

14. (new) The process of claim 1 wherein the distilling of the arsenic monochalcogenide and the at least one chalcogenide is carried out at a distillation rate in excess of about 900 x 10^{-3} g/cm^2-sec.

15. (new) The process of claim 12 wherein the reacting and homogenizing of the distilled arsenic monosulfide and sulfur is carried out by heating the distilled arsenic monosulfide and sulfur at a temperature above about 450°C until the color of the arsenic sulfide glass becomes uniform.

16. (new) The process of claim 12, further comprising:
reacting arsenic and sulfur to form arsenic monosulfide.

17. (new) The process of claim 16 wherein the reacting of arsenic and sulfur is carried out at a temperature of about 350°C to about 450°C until arsenic monosulfide is formed.

18. (new) The arsenic chalcogenide glass prepared by the process of claim 1.

19. (new) The arsenic sulfide glass prepared by the process of claim 13;
wherein the molar concentration of arsenic and sulfur varies from As_7S_{93} to $As_{40}S_{60}$; and
wherein the optical loss of the arsenic sulfide glass is about 30 dB/km or lower.